

PROPOSED EXTENSION OF THE NEOTYPE CONCEPT Z.N.(S.) 1571

By P. J. P. Whitehead (*British Museum, Natural History*)

The International Code (Article 75) envisages only two contingencies in which designation of a neotype is permitted, viz. as a result of *loss* or of *destruction* of the holotype, lectotype or syntypes. Recently, Cox (1960, *Bull. zool. Nomencl.*, 17 (6-8) : 162) proposed a third contingency, viz. when syntypical material exists but "cannot be identified with certainty." No decision has yet been taken on this by the International Commission.

Following Cox, Lockett (1965, *Ann. Mag. nat. Hist.*, (13) 7 : 257-278) used this extension of the neotype concept in order to designate neotypes amongst the specimens of spiders in the Pickard Cambridge Collection. The propriety of Lockett's action is open to question, but the circumstances left little alternative.

The problems of the Pickard Cambridge Collection parallel those recently encountered in an examination of the types of elopoid and clupeoid fishes in the Bleeker collections in Leiden and London (Whitehead, Boeseman & Wheeler, *Zool. Verhandl. Leiden*—in press). Like Pickard Cambridge, Bleeker often placed later, non-typical material in the jars already containing types. Although he very often specified the number of fishes collected on each occasion and the range of their total lengths, subsequent re-sorting and removal of deteriorating specimens has frequently rendered it impossible to distinguish typical from non-typical material. Plainly, from a calculation of total numbers of specimens collected, some or even all the syntypes are still present; under the present rules a neotype cannot, therefore, be designated.

The International Code (Article 74) rightly insists that a lectotype must be chosen from amongst syntypical material. In the case of the Bleeker collection, as with the Pickard Cambridge Collection, there is often serious doubt whether a particular specimen, which is otherwise suitable for designation as a lectotype, is in fact one of the original syntypes. Thus the likelihood of choosing a syntype as a lectotype may depend on the proportion of typical to non-typical specimens calculated or known to be extant, and the chances of success may be as low as one in ten or less; under the present rules a lectotype cannot be designated with confidence.

In these circumstances, neither a neotype nor a lectotype designation is permissible if the rules are strictly adhered to. I believe that it would be preferable to modify the rules to cover such contingencies, rather than to allow a looser interpretation of the rules which might later be open to abuse. To overcome the present contradiction, a modification is possible either to the rule governing designation of lectotypes (Article 74), or to that governing designation of neotypes (Article 75).

I consider that it is preferable to extend the neotype concept, rather than the lectotype concept, to include probable syntypical material because,

1. A lectotype can be designated by any zoologist, regardless of his knowledge of either the collection or the species involved.

- (a) such freedom of action is not open to abuse because *only* a syntype can be chosen.
- (b) such freedom of action is desirable because it greatly facilitates solution of many minor systematic and curatorial problems.
- 2. A neotype designation, on the other hand, is rigorously controlled and must, by implication, be justified through revisory work.
 - (a) such restriction of action enables other zoologists to assess the wisdom of the choice.
 - (b) such restriction of action promotes some confidence in the value of neotypes.
- 3. The selection of a type from mixed or doubtful material requires some knowledge of the collection and of the taxonomy of the species concerned. Such knowledge need not be made evident (nor need it exist) if the designation is to be one of lectotype. But as a neotype designation, the basis of the choice must be fully stated.

I propose, therefore, the following substitute for Article 75. These modifications (in *italics* here) more clearly define the circumstances necessitating them than does Cox's modification.

"*Neotypes*.—Subject to the following limitations and conditions, a zoologist may designate another specimen to serve as 'neotype' of a species if, through loss or destruction, no holotype, lectotype or syntype exists, *or if, through combination with subsequent non-typical specimens, the syntypical material is no longer recognizable as such*".

The following amendments are necessary in the remaining provisions of Article 75.

—Section (a) (i). to end of sentence add "*or, in the case of syntypes, none are recognizable as such*".

—Section (c) (3). substitute "the author's reasons for believing all of the original type material to be lost or destroyed, *or not recognizable as such*, and the steps that have been taken to trace it".

COMMENT ON WHITEHEAD'S PROPOSAL TO EXTEND THE NEOTYPE CONCEPT

By M. Boeseman (*Rijksmuseum van Natuurlijke Historie, Leiden*)

To the outline of the problem at issue, as adequately put forward by Mr. Whitehead, little need be added. However, while agreeing that some regulations for the considered circumstances may be of interest, I am inclined to disagree with the solution and the argument which Mr. Whitehead provides.

I consider it preferable to extend the lectotype (or syntype) concept, rather than the neotype concept, to include probable syntypical material because,

1. The differences between the designations of lectotypes and neotypes are not as extreme as Mr. Whitehead presumes. Though any zoologist, regardless of his knowledge of either the collection or the species involved, may indicate lectotypes (Article 74), experience hitherto has shown that this has almost invariably been done by accomplished

specialists. We usually have to accept the syntypical status of a lectotype, though the possibility of errors is never precluded. Even the most careful taxonomist often has to trust old or inadequate labels or registers, or circumstantial evidence, as sole proof for (syn)typical status, and therefore is liable to make mistakes. Or, the verification of homogeneity of presumed syntypical or partly (syn)-typical material requires at least some experience in taxonomic research. In fact, the usual confidence in the syntypical status of lectotypical specimens is mostly based on the absence of a possibility for verification, and the extant procedure is open to abuse. Therefore, the selection of a lectotype is just as much the task of a competent specialist as the selection of a neotype. Considering general practice, (a) the freedom of action for designation by *any* zoologist is seldom if ever exerted.

(b) this freedom of action seems moreover of little importance as usually only specialists try to solve minor systematic and curatorial problems.

2. While a neotype designation may (theoretically) be more rigorously controlled, and justified by revisory work, practice is often different. It seems important to point out here that the words "revisory work" are open to various interpretations. The principal difference between lectotype designation and neotype designation seems to be the requirement for neotype designation to be "necessary in the interest of stability of nomenclature", a requirement also open to various interpretations. Therefore,

(a) the restriction of action is of moderate importance, considering general usage.

(b) such restriction hardly promotes more confidence in the value of neotypes than in the value of lectotypes.

3. As in the selection of a type from mixed or doubtful material, the selections of neotypes *and* of lectotypes require adequate knowledge of the collection and of the species or group concerned.

To this critical review of Mr. Whitehead's arguments, the following may be added:

4. Considering the selection of a type from mixed or doubtful material, and the selection from syntypical material (of which the syntypical status may be based on unreliable information, see 1), there seems to be at most a difference in degree of reliability, but no differences in principle. Therefore, it seems advisable to designate the selected specimen from mixed or doubtful material as a lectotype, as may be sustained by the consideration that

(a) the lectotype concept as it stands could already include the possibility to select a lectotype from doubtful or mixed material. The author of the designation, when choosing a specimen in adequate agreement with the original description, is favoured by the benefit of doubt, though restricted by his responsibility.

- (b) the hazard of selecting as a lectotype from mixed or doubtful material a non-typical specimen, whatever the odds numerically, is greatly diminished by the required careful comparison of the specimen with the original description.
- (c) the chances that a lectotype selected from mixed or doubtful material will ever be contested are negligible or, at least, will not surpass in frequency the erroneous lectotype selections in normal procedure.
- (d) while the correction of erroneous neotype designations requires a troublesome procedure, no such difficulties exist for a correction of erroneous lectotype designations (Article 74 (a) (i)).
- (e) while a neotype designation is only warranted when necessary in the interest of stability of nomenclature, no such rigorous and ambiguous restriction exists for the designation of a lectotype.

Therefore, I propose that

- (a) the lectotype concept as it stands is tacitly accepted to include already facilities for the indication of lectotypes from mixed or doubtful material.
- (b) to Article 74. Lectotypes be added: (a) (ii) In case of designation of a lectotype from mixed or doubtfully syntypical material, this designation is valid only if accompanied by the available data on the circumstances and the arguments for the actual choice.